

## **REMARKS / ARGUMENTS**

### **I. General Remarks**

Applicants hereby request continued examination, in accordance with 37 C.F.R. § 1.114. Applicants respectfully request consideration of the claims in light of the amendments and remarks contained herein.

Applicants respectfully submit that these amendments add no new matter to the application and are supported by the specification as originally-filed. All the amendments are made in a good faith effort to advance the prosecution on the merits of this case. The claims amended herein were not necessarily amended for reasons relating to patentability. Applicants thank the Examiner for her careful consideration of this application, including the references Applicants have submitted.

### **II. Disposition of the Claims**

At the time of the Advisory Action, claims 18-76 were pending. Claims 18, 19, 25, 26, 31-36, 42, 43, 45, 46, 48, 49, 65, 66 and 68-76 stand rejected and claims 20-24, 27-30, 37-41, 44, 47, 50-64 and 67 stand withdrawn from consideration. Applicants have amended claims 18-29, 34-46, 50-61, 68, and 72-76. Applicants have cancelled claim 33 and added claim 77. All the above amendments are made in a good faith effort to advance the prosecution on the merits of this case. Applicants reserve their rights to take up prosecution on the claims as originally filed in this or an appropriate continuation, continuation-in-part, or divisional application.

### **III. Remarks Regarding Restriction/Election**

In a telephone conversation with the Examiner on September 12, 2007, the Examiner agreed that independent claim 18 is generic to two patentably distinct species represented by independent claims 35 and 50 (and their respective dependent claims). Furthermore, the Examiner indicated that upon allowance of a generic claim, Applicants would be entitled to the consideration of these additional species which include all the limitations of the allowed generic claim. Nevertheless, in Section III.B below, Applicants have included the following explanation of the mistake with respect to withdrawing claims 50-64 as directed to a nonelected invention rather than a nonelected species to clarify the record. Again, Applicants thank the Examiner for her recognition that claims 50-64 are directed towards a species and would be allowable if the generic claim 18 is found to be allowable.

**A. Claims 28-29**

In the Final Office Action, the Examiner stated that claims 28-29 are “withdrawn from consideration as directed to a non-elected invention.” (Final Office Action at 8.) Applicants respectfully submit that claims 28-29 have been amended herein to depend from independent claim 18 and therefore request inclusion of claims 28-29 in elected Group II.

**B. Claims 50-64**

In the Final Office Action the Examiner has stated:

The Examiner agrees that claim 67 is withdrawn as being directed to a non-elected species. However, the Examiner disagrees with the argument about claims 50-64: claims 50-64 do not depend on claim 18, but relate to method of installing a gravel pack which is an independent invention, not species.

(Final Office Action at 8.) Applicants would like to clarify certain issues regarding the previously required elections. In the Office Action dated November 17, 2006, the Examiner issued a restriction requirement between what the Examiner identified as four “distinct” inventions as follows:

- I. Claims 1-17, drawn to a method of making a reduced-density, coated particulate, classified in class 427, subclass 212.
- II. Claims 16-27, and 30-34, drawn to a method of treating a subterranean formation, classified in class 166, subclass 293.
- III. Claims 35-49, drawn to a method of fracturing a subterranean formation, classified in class 166, subclass 293.
- IV. Claims 50-64, drawn to a method of installing a gravel pack, classified in class 507, subclass 200.

In response, Applicants elected Group II, and traversed the restriction requirement on the basis that independent claim 18 is generic to independent claims 35 and 50, and thus claims 18-64 do not represent “independent and distinct inventions,” as claimed by the Examiner, but rather that claims 35 and 50, and their respective dependent claims, represent patentably distinct species. (Response to Office Action dated November 17, 2006 at 9.)

The Examiner then responded as follows:

The Examiner agrees with Applicants that claim 18 is generic to both independent claims 35 and 50 because a servicing fluid of claim 18 may be used as a fracturing fluid or for forming a gravel pack (See specification, P5). In other words, a servicing fluid is generic to two independent and distinct species of fluid. The

Examiner will join claims 35-49, 65-66 (drawn to a fracturing fluid) to elected Group II, claims 18-27, and 30-34.

Claims 28-29 of Group I and claims 50-64, and 67 (drawn to forming a gravel pack) are withdrawn from consideration as directed to a **non-elected** invention. Claims 20-24, 27, 30, 44, [and] 47 are withdrawn from consideration as directed to a **non-elected species**. [emphasis in original].

(Office Action dated January 18, 2007 at 2.) As may be seen from the quoted language above, the Examiner agrees with Applicants that independent claim 18 is generic to two patentably distinct species represented by independent claims 35 and 50 (and their respective dependent claims). See Office Action dated January 18, 2007 at 2. Furthermore, the Examiner joined claims 35-49 and 65-66 directed to a method fracturing, despite the fact that Applicants never elected this particular species for examination. As such, it is unclear to Applicants while the Examiner maintains that claims 50-64 are withdrawn as directed to a non-elected invention while agreeing that these same claims are directed to a patentably distinct species.

Pursuant to 37 C.F.R. § 1.141(a), an application may claim more than one patentably distinct species, not to exceed a reasonable number, so long as the application also includes an allowable generic claim embracing the patentably distinct species. Furthermore, in an application containing a generic claim embracing more than one species, 37 C.F.R. § 1.146 authorizes an Examiner to request that Applicants elect a single species for initial examination on the merits. However, upon allowance of a generic claim, Applicants are entitled to the consideration of additional species which include all the limitations of an allowed generic claim as provided by 37 C.F.R. 1.141.

Applicants again would like to clarify that claims 50-64, and 67 should be withdrawn from consideration as being directed to a non-elected species. Thus, upon allowance of a generic claim, Applicants are entitled to the consideration of additional species which include all the limitations of an allowed generic claim as provided by 37 C.F.R. 1.141. Moreover, Applicants would also like to clarify that lack of dependency from a generic claim is not an appropriate standard to designate a claim or set of claims as an independent invention. Therefore, Applicants respectfully request reconsideration of the designation of claims 50-64.

#### **IV. Remarks Regarding Claim Objections**

The Examiner has objected to claims 28-29 “because ... [their] status identifiers should be changed to (Withdrawn) because they depend on withdrawn claim 1.” (Final Office

Action at 2). Applicants have amended claims 28 and 29 herein to depend from claim 18 and have therefore changed their status identifiers to (Currently Amended).

**V. Remarks Regarding Rejections Under 35 U.S.C. § 112, Second Paragraph**

The Examiner has rejected claims 28 and 29 under 35 U.S.C. 112, second paragraph, “as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 28 and 29 are confusing because they depend on cancelled claim 1.” (Final Office Action at 2.) Applicants have amended claims 28 and 29 to depend from claim 18 and therefore respectfully request withdrawal of this rejection.

**VI. Remarks Regarding Rejections Under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a)**

**A. Claims 68-70, 72-73, and 75-76**

Claims 68-70, 72-73, and 75-76 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent Application Publication No. 2002/0048676 by McDaniel *et al.* (hereinafter “*McDaniel*”) “for the same reasons of record as set forth in paragraph 3 of the Office Action mailed on 1/18/2007 because the scope of invention of new claims [68-70, 72-73, and 75-76] are substantially identical to the scope of non-amended claims 18, 19, 25, 32, and 35.” (Final Office Action at 4.) With respect to these rejections, the Office Action mailed on January 18, 2007 (hereinafter “Previous Office Action”) states:

McDaniel et al disclose a method of treating a subterranean formation comprising providing a servicing fluid comprising low-density composite particulate proppant (See P62). It is the Examiner’s position that pumping the servicing fluid into a subterranean formation is implied. McDaniel et al teach that a composite particulate comprises finely divided mineral or finely divided mineral and fiber, bound by suitable organic binder or inorganic binder (See P53). The composite particulates may comprise a low density filler material (such as ground walnut shells) together with a higher density filler material (such as finely divided silica), and a binder of polymer resin and cement, so long as the respective amounts of these ingredients results in a composite particle having the desired low density of 0.90 to 2.20 gm/cm<sup>3</sup> (See P57). . .

(Previous Office Action at 3-4.) Applicants respectfully disagree that the scope of claims 68-70, 72-73, and 75-76 is identical to the scope of non-amended claims 18, 19, 25, 32, and 35. In addition, Applicants submit that the Examiner has not shown that *McDaniel* discloses or suggests

every element as recited in claims 68-70, 72-73, and 75-76 as required to anticipate the claims under 35 U.S.C. § 102(b), or to obviate the claims under 35 U.S.C. § 103(a). MPEP § 2131, 2142.

In particular, *McDaniel* fails to disclose “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate,” as recited in independent claim 68. The low density filler material disclosed in *McDaniel* is combined with a binder to form a composite particulate. (*McDaniel*, para. [0053].) This composite particulate may then be coated with a resin. (*McDaniel*, para. [0059].) *McDaniel* fails to disclose, however, that density-reducing material may be adhered onto the surface of the coated particulate and that this material may be adhered on-the-fly. Therefore, as *McDaniel* does not disclose “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate,” Applicants submit that *McDaniel* does not anticipate or obviate claim 68. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 69-70, 72-73, and 75-76 depend, either directly or indirectly, from claim 68, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of these rejections.

**B. Claims 68-70 and 72**

Claims 68-70 and 72 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 4,493,875 issued to Beck *et al.* (hereinafter “*Beck*”) “for the same reasons of record as set forth in paragraph 4 of the Office Action mailed on 1/18/2007 because the scope of invention of new claims [68-70 and 72] are substantially identical to the scope of non-amended claims 18, 19, 32, and 35.” (Final Office Action at 4.) With respect to these rejections, the Previous Office Action states:

Beck et al disclose a method of treating a subterranean formation comprising the steps of: providing a servicing fluid comprising reduced density coated particulate proppant (See column 1, lines 11-15, 57-68). It is the Examiner’s position that pumping the servicing fluid into a subterranean formation is implied. Beck et al teach that coating core particles with a reduced-density hollow microparticles can be carried out in a mixer (batch) (See column 2, lines 63-68) or by spray drying slurry of the core particles and the hollow microparticles in a binder solution (See column 3, lines 22-25).

It is the Examiner's position that reduced-density coated particulate of Beck et al is substantially identical to that made by claimed-on-the-fly mixing, as opposed to batch or partial batch mixing.

(Previous Office Action at 5.) Applicants respectfully disagree that the scope of claims 68-70, and 72 is identical to the scope of non-amended claims 18, 19, 32, and 35. In addition, Applicants respectfully submit that the Examiner has not shown that *Beck* discloses or suggests every element as recited in claims 68-70 and 72 as required to anticipate the claims under 35 U.S.C. § 102(b), or to obviate the claims under 35 U.S.C. § 103(a). MPEP § 2131, 2142.

In particular, *Beck* fails to disclose "adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate." Applicants submit that the Examiner has failed to point to any portion of *Beck* that discloses "adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate," as is required to anticipate a claim under § 102(b). In addition, the Examiner has failed to provide any reasoning why it would be obvious to one of ordinary skill in the art to modify *Beck* to arrive at the claimed invention. Rather, the Examiner has only stated "that reduced-density coated particulate of Beck et al is substantially identical to that made by claimed-on-the-fly mixing, as opposed to batch or partial batch mixing."

Therefore, Applicants respectfully assert that the Examiner has failed to establish that *Beck* anticipates independent claim 68, and similarly, has failed to establish a *prima facie* case of obviousness with respect to independent claim 68. As such, Applicants respectfully request the withdrawal of these rejections. Moreover, since "a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers," and since claims 69, 70, and 72 depend, either directly or indirectly, from claim 68, Applicants similarly request the withdrawal of the rejections with respect to these dependent claims for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of these rejections.

## **VII. Remarks Regarding Rejections Under 35 U.S.C. § 103(a)**

### **A. Claims 68-70, 72-73 and 75-76**

Claims 68-70, 72-73 and 75-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over *McDaniel* in view of U.S. Patent No. 5,908,073 issued to Nguyen *et al* (hereinafter "*Nguyen*") "for the same reasons of record as set forth in paragraph 3 of the Office

Action mailed on 1/18/2007 because the scope of invention of new claims [68-70, 72-73, and 75-76] are substantially identical to the scope of non-amended claims 18, 19, 25, 32, and 35.” Applicants assume the Examiner intended to reference paragraph 6 of the Previous Office Action, which states:

McDaniel et al do not expressly teach that a fracturing fluid is pumped into a subterranean formation. However, Nguyen et al teach pumping of a fracturing fluid into a subterranean zone (See Abstract). McDaniel et al fails to teach that ...a binder is mixed with particulates on-the-fly [or] ... the reduced-density, coated particulates are suspended in the servicing fluid on-the-fly.

Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly (See column 5, lines 47-57).

...[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have suspended the reduced, density, coated particulates in a servicing fluid in McDaniel et al on-the-fly since Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly.

(Previous Office Action at 6-7.) Applicants respectfully disagree that the scope of claims 68-70, 72-73, and 75-76 is identical to the scope of non-amended claims 18, 19, 25, 32, and 35. In addition, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness as required to obviate the claims.

To form a basis for a § 103(a) rejection, a *prima facie* case of obviousness must be established. Obviousness is determined by construing the scope of the prior art, identifying the differences between the claims and the prior art, determining the level of skill in the pertinent art at the time of the invention, and considering objective evidence present in the application indicating obviousness or nonobviousness. *Graham v. John Deere*, 383 U.S. 1, 17 (1966). Based on the foregoing, an explicit, cogent reason must be provided as to why it would be obvious to modify the prior art to arrive at the claimed invention. See *Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd.*, No. 06-1329 (Fed. Cir. 2007).

In *KSR Int'l Co. v. Teleflex Inc.*, the Supreme Court reaffirmed the *Graham* analysis, and indicated that while it should not be rigidly applied, a useful test for determining

obviousness is to consider whether there is a teaching, suggestion or motivation in the prior art that would lead one of ordinary skill in the art to combine known elements of the prior art to arrive at the claimed invention. See *KSR International Co. v. Teleflex, Inc.*, 550 U.S. \_\_\_ (2007) (slip op., at 14). Furthermore, the Court emphasized that a patent examiner's analysis in determining obviousness should be made explicit in order to facilitate review. *Id.*

Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness with respect to claims 68-70, 72-73, and 75-76, in that the combination of *McDaniel* and *Nguyen* does not teach or suggest all of the elements of the claims. As discussed in Section VI(A) above, *McDaniel* does not teach all the elements of independent claim 68, from which claims 69-70, 72-73, and 75-76 depend, because *McDaniel* does not, either explicitly or inherently, teach or suggest "adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate." *McDaniel* discloses a composite particulate made of a low density filler and a binder, which may be coated with a resin. (*McDaniel*, para. [0053], [0059].) *McDaniel* fails to disclose, however, that density reducing material may be adhered onto the surface of the coated particulate. Similarly, *Nguyen* fails to provide this missing limitation. Moreover, the Examiner has given no reason as to why it would have been obvious to one of ordinary skill in the art to modify *McDaniel* to arrive at the present invention.

Therefore, Applicants respectfully assert that the Examiner has failed to establish that the combination of *McDaniel* and *Nguyen* obviates independent claim 68. Moreover, since "a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers," and since claims 69, 70, 72, 73, 75, and 76 depend, either directly or indirectly, from claim 68, Applicants these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**B. Claims 68-70 and 72**

Claims 68-70 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beck* in view of *Nguyen* "for the same reasons of record as set forth in paragraph 4 of the Office Action mailed on 1/18/2007 because the scope of invention of new claims [68-70, 72-73, and 75-76] are substantially identical to the scope of non-amended claims 18, 19, 25, 32, and 35." Applicants assume the Examiner intended to reference paragraph 7 of the Previous Office Action, which states:



Beck et al do not expressly teach that a fracturing fluid is pumped into a well. However, Nguyen et al teach pumping of a fracturing fluid into a subterranean zone (See Abstract). Beck et al fails to teach that the reduced density, a binder is mixed with particulates on-the-fly [*sic*] (Claims 18, 35); the reduced-density, coated particulates are suspended in the servicing fluid on-the-fly.

...

[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have suspended the reduced-density, coated particulates in a servicing fluid in Beck et al on-the-fly since Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly. [emphasis in original]

[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have used flow mixing for making composite particles in Beck et al since Nguyen et al teach that mixing a dry proppant with other dry additives and a liquid can be carried out by utilizing conventional batch mixing or on-the-fly. [emphasis in original]

(Previous Office Action at 7-8.) Applicants respectfully disagree that the scope of claims 68-70 and 72 is identical to the scope of non-amended claims 18, 19, 25, 32, and 35. In addition, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness as required to obviate the claims.

As previously stated, to form a basis for a § 103(a) rejection, a *prima facie* case of obviousness must be established. Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness with respect to claims 68-70 and 72, in that there is no suggestion or motivation to modify or combine the references.

*Beck* does not disclose “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate.” The Examiner has essentially stated that it would be obvious to combine *Beck* and *Nguyen* such that the hollow glass microspheres disclosed in *Beck* are adhered to the surface of a proppant on-the-fly. Applicants disagree. *Beck* states that the proppant is produced by a process of “(1) mixing the core particles with adhesive to provide adhesive-coated core particles, (2) while the adhesive is tacky, mixing the coated core particles with hollow microparticles (preferably hollow ceramic microparticles) to adhere a plurality of the microparticles to each coated core and (3) curing each

adhesive composition to a nontacky state while keeping the individual coated core particles substantially out of adherent contact with each other.” (*Beck*, col. 2, line 62 - col. 3, line 7.) *Beck* further provides that “the coated core particles may be kept essentially out of contact with each other by being tumbled in an excess of hollow microparticles until the exposed adhesive composition has cured to a substantially nontacky state.” (*Beck*, col. 3, lines 10-14.) Applicants submit that there is no motivation to combine *Beck* and *Nguyen* to arrive at the claimed invention at least in light of *Beck*’s disclosure that coated core particles should be kept essentially out of contact with each other by being tumbled in an excess of hollow microparticles until the exposed adhesive composition has cured to a substantially nontacky state. Thus, it would not be obvious to modify *Beck* to include the limitation of “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate.”

Therefore, Applicants respectfully assert that the Examiner has failed to establish that the combination of *Beck* and *Nguyen* obviates independent claim 68. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 69, 70, and 72 depend, either directly or indirectly, from claim 68, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**C. Claims 73 and 75-76**

Claims 73 and 75-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beck* in view of *McDaniel* “for the same reasons of record as set forth in paragraph 5 of the Office Action mailed on 1/18/2007 because the scope of invention of new claims [73 and 75-76] are substantially identical to the scope of non-amended claims 25, 45 [and] 46.” (Final Office Action at 5.) With respect to this rejection, the Previous Office Action states:

Beck et al further teach that a ...resin composition could comprise a liquid resole phenol/formaldehyde resin (See column 4, lines 1-3). Beck et al fail to teach that the binder could be glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin ... or a polyester or a natural resin.”

...

McDaniel et al teach that a liquid resole phenol/formaldehyde resin (See P53, 70, 98) or a glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin (See P187) or a polyester resin (See P70) or a natural resin (See P75) can be used for binding particles together.

(Previous Office Action at 5-6). Applicants respectfully disagree that the scope of claims 73 and 75-76 is identical to the scope of non-amended claims 25, 45 and 46. In addition, Applicants respectfully submit that the Examiner has not shown that the combination of *Beck* and *McDaniel* teach or suggest all of the elements of the claim. MPEP § 2143.

As discussed in Section VI(B) above, *Beck* does not teach or suggest “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate,” as recited in independent claim 68. Similarly, as discussed in Section VI(A), *McDaniel* also fails to provide the missing limitation. Thus, these references do not obviate claim 68. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 73 and 75-76 depend, either directly or indirectly, from claim 68, these dependent claims are allowable for at least the same reasons. *See* 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**D. Claim 74**

Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over *McDaniel/Beck* in view of *McDaniel/McDaniel* in view of *Nguyen/Beck* in view of *Nguyen*, further in view of U.S. Patent 4,665,988 issued to Murphey *et al.* (hereinafter “*Murphey*”) “for the reasons of record set forth in paragraph 8 of the Office Action mailed on 1/18/2007 because the scope of invention of new claim [74 is] ... substantially identical to the scope of non-amended claim 26. (Final Office Action at 5.) With respect to this rejection, the Previous Office Action states:

The cited prior art fails to teach claimed solvent.

...

Murphey *et al* teach ... the use of ethylene glycol butyl ether (See column 5, line 54) as a solvent for dissolving epoxy resins (See column 5, lines 47-48) such as bisphenol A-epichlorohydrin (See column 5, line 60).

(Previous Office Action at 8.) Applicants respectfully disagree that the scope of claim 74 is identical to the scope of non-amended claim 26. In addition, Applicants respectfully submit that the Examiner has not shown that the combination of *McDaniel/Beck* in view of *McDaniel/McDaniel* in view of *Nguyen/Beck* in view of *Nguyen* teach or suggest all of the elements of the claim, nor has the Examiner established a *prima facie* case of obviousness as required to obviate the claims. MPEP § 2143.

As discussed in Section VII(A) above, *McDaniel* and *Nguyen*, alone or in combination, do not obviate independent claim 68, from which claim 74 depends. Similarly, as discussed in Section VI(B) above, *Beck* does not teach or suggest “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate,” as recited in independent claim 68. Furthermore, *Murphey* also fails to provide this missing limitation. Thus, these references do not obviate claim 68. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claim 74 depends, either directly or indirectly, from claim 68, this dependent claim is allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**E. Claims 18-19, 25, 31-33, 35-36, 42, 45-46, 48-49, 65-66 and 71**

Claims 18-19, 25, 31-33, 35-36, 42, 45-46, 48-49, 65-66 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over *McDaniel* in view of U.S. Patent No. 4,969,523 issued to Martin *et al.* (hereinafter “*Martin*”). With respect to this rejection, the Final Office Action states:

McDaniel et al teach that the filler particles should be inert to components in the subterranean formation, e.g., well treatment fluids, and be able to withstand the conditions, e.g., temperature and pressure, in the well (See P81). However, McDaniel et al fail to teach that polystyrene divinylbenzene may be used as the density reducing material.

Martin et al teach that a combination of first and second particles having a density within the range of about 0.7 to about 4.0 (See column 3, lines 12-26), wherein [the] first particles [have] a density selected from the lower portion of the density range such as polystyrene divinylbenzene (SVDB) (See column 3, line 28) and the second particles [have] a density selected from the upper portion of the density range such as sand (See column 3, line 33) may be used in a servicing fluid for gravel packing of [a] subterranean well (See column 2, lines 12-15). In other words, Martin et al teach that low density SVDB is suitable for use in a servicing fluid, i.e. it is inert to components in the subterranean formation, e.g., well treatment fluids, and is able to withstand the conditions, e.g., temperature and pressure, in the well [emphasis in original].

(Final Office Action at 5-6.) Applicants respectfully disagree and submit that the Examiner has not established a *prima facie* case of obviousness as required to obviate claims 18, 35, and 68 in

that the combination of *McDaniel* and *Martin* does not teach or suggest all of the elements of the claims. MPEP § 2143.

With respect to independent claims 18, 35 and 68, *McDaniel* fails to disclose “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate.” As previously discussed above in Section VI(A), the low density filler material disclosed in *McDaniel* is combined with a binder to form a composite particulate. (*McDaniel*, para. [0053].) This composite particulate may then be coated with a resin. (*McDaniel*, para. [0059].) *McDaniel* fails to disclose, however, that density-reducing material may be adhered onto the surface of the coated particulate and that this material may be adhered on-the-fly. Nor does *Martin* provide this missing limitation. As such, Applicants respectfully assert that these claims are not obviated by *McDaniel* in view of *Martin*.

Therefore, Applicants respectfully assert that independent claims 18, 35, and 68 are not obviated by *McDaniel* in view of *Martin*. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 19, 25, 31-33, 36, 42, 45-46, 48-49, 65-66 and 71 depend, either directly or indirectly, from claims 18, 35 or 68, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**F. Claims 18-19, 25, 31-33, 35-36, 42, 45-46, 48-49, 65-66 and 71**

Claims 18-19, 25, 31-33, 35-36, 42, 45-46, 48-49, 65-66 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over *McDaniel* in view of *Nguyen*, further in view of *Martin* “for the reasons of record set forth in paragraph 6 of the Office Action mailed on 1/18/2007” (Final Office Action at 6.) With respect to this rejection, the Previous Office Action states:

McDaniel et al do not expressly teach pumping of a fracturing fluid into a subterranean zone (See Abstract). McDaniel et al fails to teach that the ... binder is mixed with particulates on-the-fly (claims 18, 35) [and that] the reduced-density, coated particulates are suspended in the servicing fluid on-the-fly.

Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly (See column 5, lines 47-57) [emphasis in original].

(Previous Office Action at 6-7.) The Examiner's argument with respect to *Martin* in the Final Office Action is quoted above in Section VII(E). Applicants respectfully disagree and submit that the Examiner has not established a *prima facie* case of obviousness as required to obviate the claims, in that the combination of *McDaniel* in view of *Nguyen* and further in view of *Martin* does not teach or suggest all of the elements of the claims.

With respect to independent claims 18 and 35, *McDaniel* fails to disclose "adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate." As previously discussed above in Section VI(A), the low density filler material disclosed in *McDaniel* is combined with a binder to form a composite particulate. (*McDaniel*, para. [0053].) This composite particulate may then be coated with a resin. (*McDaniel*, para. [0059].) *McDaniel* fails to disclose, however, that density-reducing material may be adhered onto the surface of the coated particulate and that this material may be adhered on-the-fly. Nor does *Nguyen* or *Martin* provide this missing limitation. As such, Applicants respectfully assert that these claims are not obviated by *McDaniel* in view of *Nguyen* and further in view of *Martin*.

Therefore, Applicants respectfully assert that independent claims 18, 35, and 68 are not obviated by *McDaniel* in view of *Nguyen*, further in view of *Martin*. Moreover, since "a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers," and since claims 19, 25, 31-33, 36, 42, 45-46, 48-49, 65-66 and 71 depend, either directly or indirectly, from claims 18, 35 or 68, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**G. Claims 18-19, 32-33, 35-36, 49, 65-66 and 71 (*Beck* in view of *Martin*)**

Claims 18-19, 32-33, 35-36, 49, 65-66 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beck* in view of *Martin*. With respect to this rejection, the Final Office Action states:

Beck et al teach that a void containing particle having density less than 0.8 c/cc (See column 1, lines 67-68) may be used to reduce the density of a proppant approaching densities of a typical fracturing fluid to avoid [a] settling problem (See column 1, lines 57-62). Beck et al fail to teach that polystyrene divinylbenzene of 0.7-0.8 g/cc may be used as a density reducing material.

*Martin* et al are applied here for the same reasons as above.

(Final Office Action at 6-7.) Applicants respectfully disagree and submit that the Examiner has not established a *prima facie* case of obviousness as required to obviate independent claims 18, 35, and 68. MPEP § 2143.

As discussed in Section VI(B) above, *Beck* does not teach all the elements of independent claims 18, 35, and 68, from which claims 19, 32-33, 36, 49, 65-66 and 71 depend, because *Beck* does not, either explicitly or inherently, teach or suggest “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate.” Similarly, *Martin* fails to provide this missing limitation. Therefore, Applicants respectfully assert that independent claims 18, 35, and 68 are not obviated by *Beck* in view of *Martin*. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 19, 32-33, 36, 49, 65-66 and 71 depend, either directly or indirectly, from claims 18, 35 or 68, these dependent claims are allowable for at least the same reasons. *See* 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

Therefore, Applicants respectfully assert that independent claims 18, 35, and 68 are not obviated by *Beck* in view of *Martin*. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 19, 32-33, 36, 49, 65-66 and 71 depend, either directly or indirectly, from claims 18, 35 or 68, these dependent claims are allowable for at least the same reasons. *See* 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**H. Claims 18-19, 32-33, 35-36, 49, 65-66 and 71 (*Beck* in view of *Nguyen*, further in view of *Martin*)**

Claims 18-19, 32-33, 35-36, 49, 65-66 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beck* in view of *Nguyen*, further in view of *Martin* “for the reasons of record set forth in paragraph 7 of the Office Action mailed 1/18/2007.” (Final Office Action at 7.) With respect to this rejection, the Previous Office Action states:

Beck et al do not expressly teach that a fracturing fluid is pumped into a well. However, Nguyen et al teach pumping of a fracturing fluid into a subterranean zone (See Abstract). Beck et al fails to teach that ...a binder is mixed with particulates on-the-fly [or] ... the reduced-density, coated particulates are suspended in the servicing fluid on-the-fly.

(Previous Office Action at 7.) The Examiner’s argument with respect to *Martin* in the Final Office Action is quoted above in Section VII(E). Applicants respectfully disagree and submit

that the Examiner has not established a *prima facie* case of obviousness as required to obviate the claims.

With respect to independent claims 18, 35 and 68, as discussed in Section VII(B) above, *Beck* does not disclose “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate.” The Examiner has essentially stated that it would be obvious to combine *Beck* and *Nguyen* such that the hollow glass microspheres disclosed in *Beck* are adhered to the surface of a proppant on-the-fly. Applicants disagree. *Beck* states that the proppant is produced by a process of “(1) mixing the core particles with adhesive to provide adhesive-coated core particles, (2) while the adhesive is tacky, mixing the coated core particles with hollow microparticles (preferably hollow ceramic microparticles) to adhere a plurality of the microparticles to each coated core and (3) curing each adhesive composition to a nontacky state while keeping the individual coated core particles substantially out of adherent contact with each other.” (*Beck*, col. 2, line 62 - col. 3, line 7.) *Beck* further provides that “the coated core particles may be kept essentially out of contact with each other by being tumbled in an excess of hollow microparticles until the exposed adhesive composition has cured to a substantially nontacky state.” (*Beck*, col. 3, lines 10-14.) Applicants submit that there is no motivation to combine *Beck*, *Nguyen* and *Martin* to arrive at the claimed invention at least in light of *Beck*’s disclosure that coated core particles should be kept essentially out of contact with each other by being tumbled in an excess of hollow microparticles until the exposed adhesive composition has cured to a substantially nontacky state. Thus, it would not be obvious to modify *Beck* to include the limitation of “adhering the density reducing material to a surface of the coated particulate on-the-fly to create reduced-density, coated particulates.”

Therefore, Applicants respectfully assert that independent claims 18, 35, and 68 are not obviated by *Beck* in view of *Nguyen*, further in view of *Martin*. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 19, 32-33, 36, 49, 65-66 and 71 depend, either directly or indirectly, from claims 18, 35 or 68, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.



**I. Claims 25, 42, and 45-46**

Claims 25, 42, and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beck* in view of *McDaniel*, further in view of *Murphey* “for the reasons of record set forth in paragraph 5 of the Office Action mailed on 1/18/2007 and above.” (Final Office Action at 7.) With respect to this rejection, the Previous Office Action states:

Beck et al further teach that a ...resin composition could comprise a liquid resole phenol/formaldehyde resin (See column 4, lines 1-3). Beck et al fail to teach that the binder could be glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin ... or a polyester or a natural resin.”

...

McDaniel et al teach that a liquid resole phenol/formaldehyde resin (See P53, 70, 98) or a glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin (See P187) or a polyester resin (See P70) or a natural resin (See P75) can be used for binding particles together.

(Previous Office Action at 5-6.) In order for a combination of references to form the basis for a rejection under 35 U.S.C. § 103(a), the combination of references must teach or suggest all of the elements of the claim. MPEP § 2143.

As discussed in Section VII(G) above, *Beck* does not teach or suggest all the elements of independent claims 18 or 35, from which claims 25, 42, and 45-46 depend. In particular, *Beck* fails to disclose “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate,” as recited in independent claims 18 and 35. Similarly, as discussed in Section VII(F), *McDaniel* fails to provide the missing limitation.

Applicants note that the Examiner has not provided any reason as to why *Murphey*, alone or in combination with any of the art of record, obviates claims 25, 42, and 45-46. Nevertheless, Applicants submit that *Murphey* similarly fails to provide all the missing limitations. Therefore, Applicants respectfully assert that independent claims 18 and 35 are not obviated by *Beck* in view of *McDaniel*, further in view of *Murphey*. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 25, 42, and 45-46 depend, either directly or indirectly, from claims 18 or 35, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**J. Claims 26 and 43**

Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over “cited prior art applied to claim 25 and 42 above” (*Beck* in view of *McDaniel*), further in view of *Murphey* “for the reasons of record set forth in paragraph 8 of the Office Action mailed on 1/18/2007 and above.” (Final Office Action at 7.) With respect to this rejection, the Previous Office Action states:

The cited prior art fails to teach claimed solvent.

...

Murphey et al teach ... the use of ethylene glycol butyl ether (See column 5, line 54) as a solvent for dissolving epoxy resins (See column 5, lines 47-48) such as bisphenol A-epichlorohydrin (See column 5, line 60).

(Previous Office Action at 8.) In order for a combination of references to form the basis for a rejection under 35 U.S.C. § 103(a), the combination of references must teach or suggest all of the elements of the claim. MPEP § 2143.

As discussed in Section VII(G) above, *Beck* does not teach all the elements of independent claims 18 or 35, from which claims 26 and 43 depend. In particular, *Beck* fails to disclose “adhering the density reducing material to a surface of the coated particulate on-the-fly to create at least one reduced-density, coated particulate,” as recited in independent claims 18 and 35. Similarly, as discussed in Section VII(F), *McDaniel* fails to provide these missing limitations. *Murphey* fails to provide these missing limitations as well.

Therefore, Applicants respectfully assert that independent claims 18 and 35 are not obviated by *Beck* in view of *McDaniel*, further in view of *Murphey*. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 26 and 43 depend, either directly or indirectly, from claims 18 or 35, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2004). Accordingly, Applicants respectfully request the withdrawal of this rejection.

**VIII. No Waiver**

All of Applicants’ arguments are without prejudice or disclaimer. By not responding to additional statements made by the Examiner, Applicants do not acquiesce to the Examiner’s additional statements, such as, for example, any statements relating to what would be

obvious to a person of ordinary skill in the art. The example distinctions discussed by Applicants are sufficient to overcome the outstanding rejections.

**SUMMARY AND PETITION FOR A ONE-MONTH EXTENSION OF TIME  
TO FILE THIS RCE**

In light of the above remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections. Applicants further submit that the application is now in condition for allowance, and earnestly solicit timely notice of the same. Should the Examiner have any questions, comments, or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile, or electronic mail.

Applicants hereby petition under the provisions of 37 C.F.R. § 1.136(a) for a one-month extension of time to file this Response, extending the period for reply from August 29, 2007 to September 29, 2007.

The Commissioner is hereby authorized to debit Baker Botts L.L.P.'s Deposit Account No. 02-0383, Order Number 063718.0178, in the amount of \$910.00 for (1) the RCE fee of \$790.00 under 37 C.F.R. § 1.17(e) and (2) the fee of \$120.00 for a one-month extension of time to file this RCE under 37 C.F.R. § 1.17(a)(1). Should the Commissioner deem that any additional fees are due, including any fees for extensions of time, Applicants respectfully request that the Commissioner accept this as a petition therefor, and direct that any additional fees be charged to Baker Botts L.L.P.'s Deposit Account No. 02-0383, Order Number 063718.0178.

Respectfully submitted,



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